

Building a Global, Knowledge-based Economy for the 21st Century



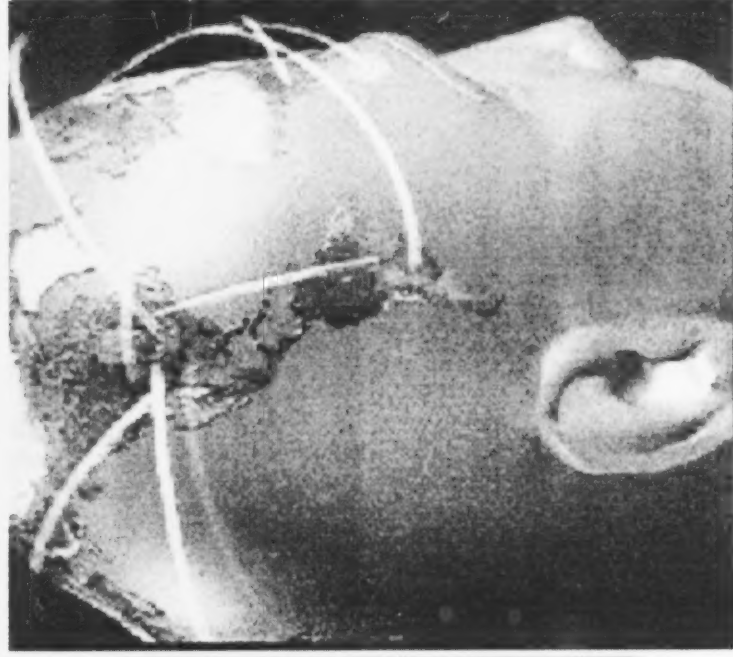
Kevin G. Lynch
Deputy Minister
Industry Canada

February 2000

***Challenge: Building a Global, Knowledge-based
Economy/Society for the 21st Century...***

"In the global, knowledge-based economy, the advantage goes to countries that are innovative, have high levels of productivity, quickly adopt the latest technology, invest in skills development for their citizens, and seek out new opportunities around the world."

**Speech from the Throne
Government of Canada
October 12, 1999**



Five trends that matter for the knowledge-based economy

Trend #1: Globalization is pervasive

*Trend #2: Shift to knowledge workers in every
sector of the economy*

*Trend #3: Information Highway is reshaping
business and markets*

*Trend #4: Standards of living are driven by
productivity*

*Trend #5: Innovation is source of value-added
growth*

Trend #1: Globalization is pervasive

- Trade is expanding and borders are falling. Our strength: Canada is uniquely open among the G-7.

- Canada's foreign trade is highly concentrated with the U.S.

- And, our trade is highly concentrated among a few large firms.

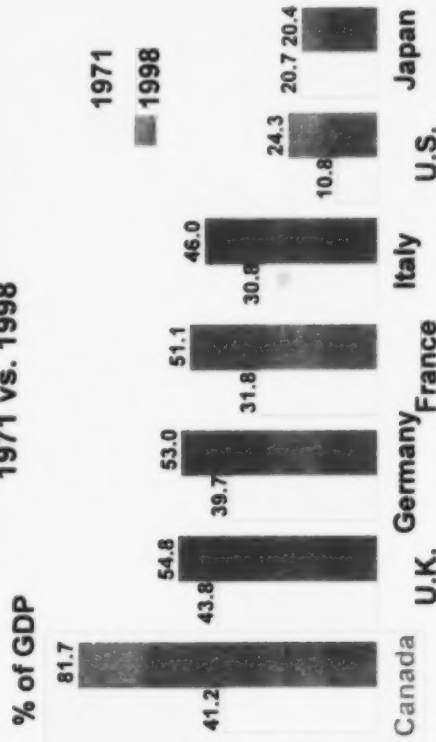
- Since the 1980s, world foreign direct investment (FDI) has grown more than twice as fast as world output and world exports.

- Trade now increasingly follows FDI rather than leads.

- And Canada has slipped in its perceived attractiveness for FDI to North America.

Trade in Goods and Services*

1971 vs. 1998



* (Exports + Imports)/GDP

Source: OECD Economic Outlook, June 1999

Canada's Share of North American FDI



Note: 1997 and 1998 data for Mexico, adding flows to 1996 stocks.
Source: OECD, Statistics Canada, BEA, SCOFI

U.S. perceptions of Canada are a challenge

- Canada has awareness, and "brand", challenges abroad:

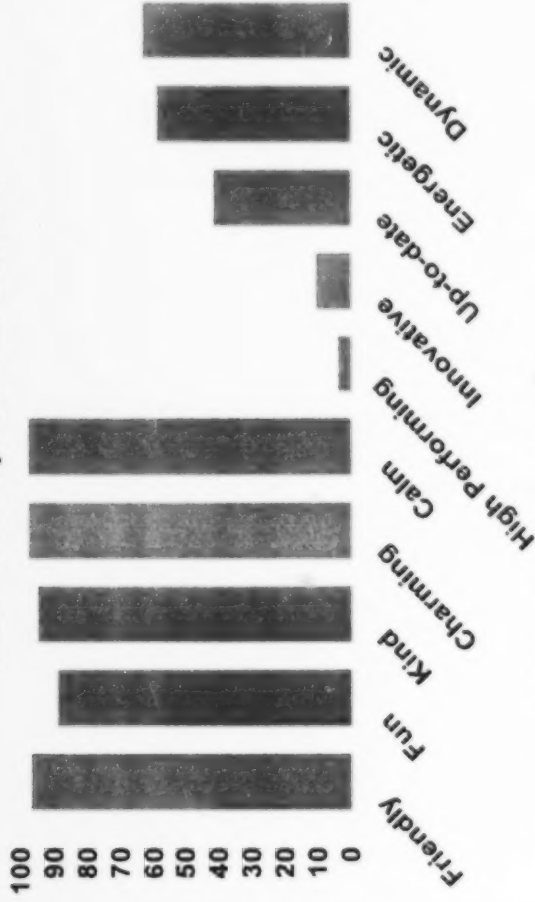
- Aspects of Canada's "brand" are positive and well known – but primarily softer values... (fun, kind, charming).

- But, we ranked much lower in attributes valued by investors... (high performing, innovative).

- And, where Canada has real strengths (deficit, inflation, interest rates, education, etc.) there is very low awareness in the U.S.

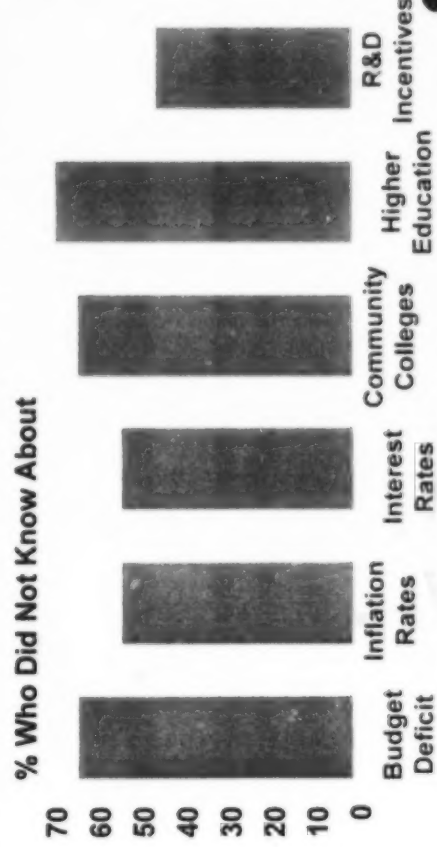
- U.S. site selectors are a case in point.

U.S. – Perceptions of Canada*



Source: Young & Rubicon Brand Asset Valuator, 1999
*Burson Marsteller Study

U.S. Site Selectors' Knowledge of Canada is Limited



Trend #2: Knowledge-intensive employment is dominating employment growth today, and in all sectors of the economy

- The knowledge-based global economy is a reality, today:

- Output is expanding fastest in the high-knowledge sectors of the economy.

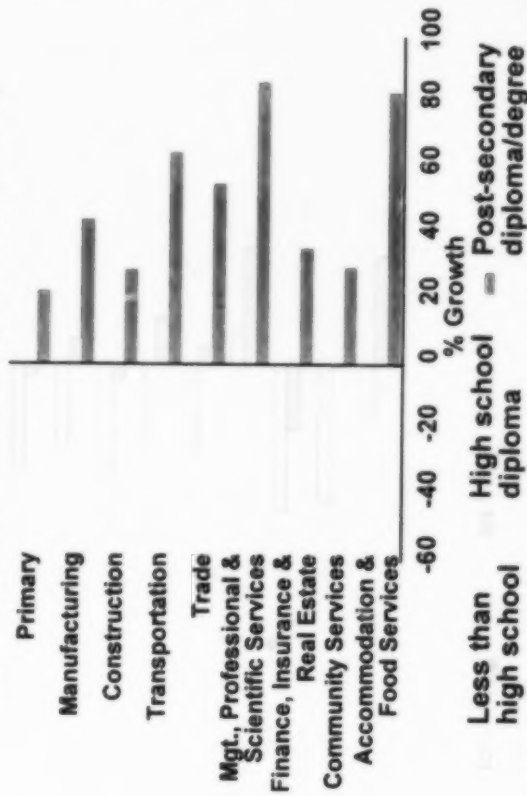
- Knowledge workers dominate employment growth in all sectors of the Canadian economy.

Employment Growth by Highest Level of Education Attained, 1990-99



Source: Compilations based on Statistics Canada (LFS) data

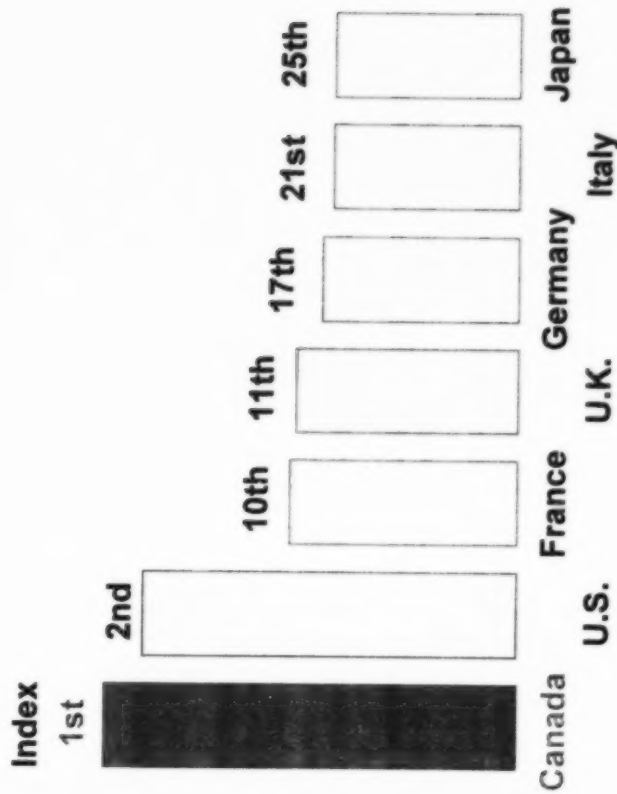
Canada and the Knowledge-based Economy Employment Growth by Educational Attainment by Sector, 1990-99



Source: Statistics Canada

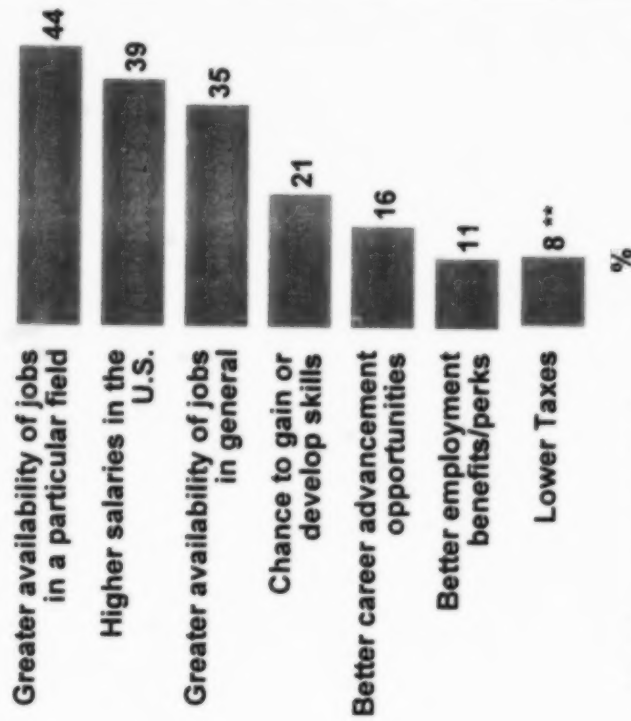
Quality labour force is a real Canadian strength...

Knowledge Workers — World Rank*



* Tertiary education enrollment standing among the 47 countries considered in the Global Competitiveness Report, 1999

Work-related Factors that Attracted Graduates to the U.S. *



* Multiple responses were allowed

** Estimate is subject to high sampling variability

Source: Survey of 1995 Graduates Who Moved to the United States

...key is to attract/retain/employ in Canada

Trend #3: The Information Highway is reshaping concepts of how to do business and where

- Globalization and the KBE are being driven by the Information Revolution.
- Advances in communication technologies are challenging the structures of how businesses and markets operate.

720 times faster

355 times cheaper

A revolution
not an evolution

Sending Cost

of a 42 page document from Ottawa to Tokyo



Overnight
Delivery

24 hours

\$39.00



Fax

31 minutes

\$24.49

● Tokyo



Internet

2 minutes

\$0.11

Source: Industry Canada compilations

"Like objects in a shattered mirror,
Internet rivals are slower than they
appear... Your future depends on
getting less than transforming
your company into a full fledged
business model"

— Business Week, March 22, 1999

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Connectedness: Canada is near the global leading-edge ...

- Canada is well positioned in international connectedness rankings*:

Conference Board of Canada - 10 Country Comparison

	Overall Connectedness	Infrastructure	Access	Affordability	Usage	Socio- Economic Enablers
U.S.	1	1	4	4	1	1
Canada	2	2	3	1	2	2
Sweden	3	6	1	1	4	6
Finland	4	3	2	3	7	9
Australia	5	5	6	6	3	3
Japan	6	9	5	7	5	4
U.K.	7	5	8	5	5	9
Germany	8	7	7	8	8	7
France	9	9	10	9	10	5
Italy	10	10	9	10	9	10

* Based on a composite index. The comparisons were based on the most current data available for all countries examined, that is, primarily 1997-98 data.
Source: Conference Board of Canada

- But, E-COMMERCE is not a top priority for Canadian CEOs:

Improving service to customer/clients		78%
Y2K readiness		76%
Increasing customer loyalty		68%
Attracting new customers/clients		65%
Cost reduction		62%
Improving management information systems		59%
Productivity enhancement		58%
Human resources' recruitment & retention		45%
Adopting new technologies		43%
Procurement/improving supplier management		36%
R&D/new product development		36%
Exploiting Internet potential/developing E-Com		29%

Source: 1999 eCommerce Survey of Canadian Business by Andersen Consulting, May 1999

... but, businesses are not making optimal use of connectivity

E-commerce potential for jobs and growth

- Canada's E-Com today (1998)
\$US 5.5 Billion

Source: Industry Canada estimates based on IDC and Forrester data

- World E-Com (2003)

Potential

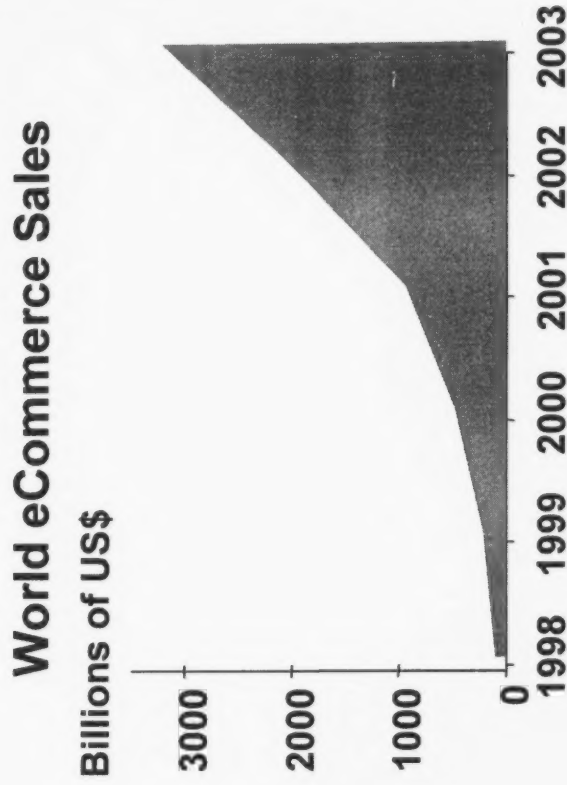
Opportunity

Canada's E-Com opportunity for 2003:
stretch to capture a 5% world share ...
\$200 Billion

Benefits

180,000+ jobs
0.6% per year in growth

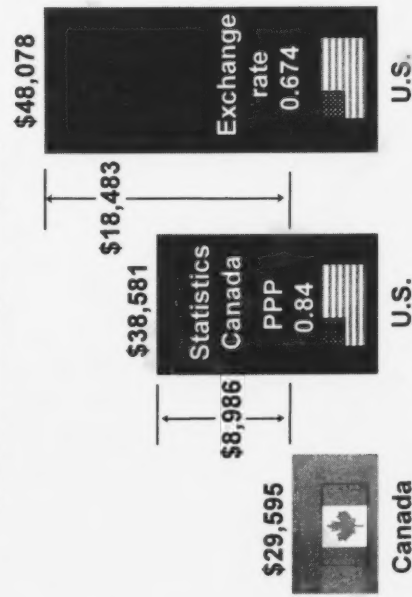
Source: EBO



Trend #4: Standards of living are driven by productivity

- Productivity is the most important determinant of a country's standard of living.
- Canada's standard of living has not improved much over the last 20 years, and weak productivity performance is the key factor.

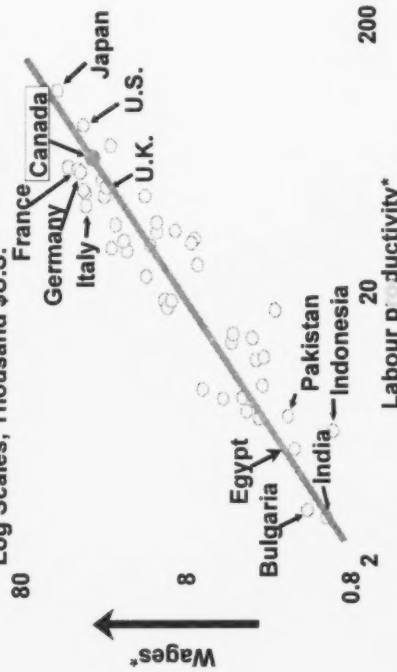
1998 Standards of Living (Real Income per Capita)



Source: Statistics Canada, U.S. Bureau of Economic Analysis and Conference Board

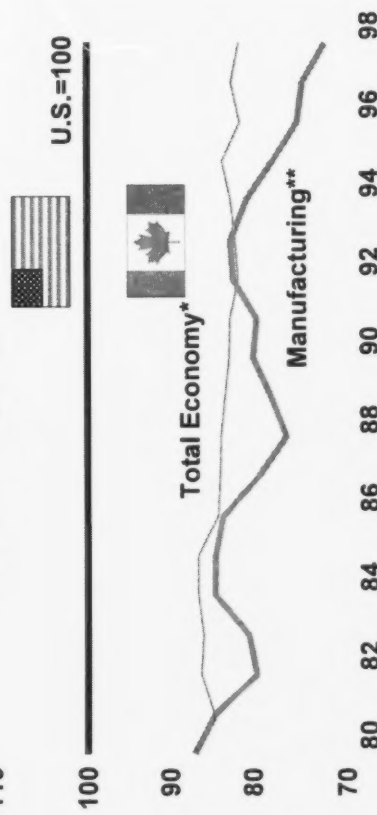
MEPA - APME

The Impacts of One's Productivity Performance Wages and Productivity, 1993 Log Scales, Thousand \$U.S.



* In manufacturing
Source: International Yearbook of Industrial Statistics, 1998; Rodrik (1998)

Productivity Levels



* Labour productivity measured using \$1998 GDP per hour

** Labour productivity for the manufacturing sector is measured by GDP per hour, based on the methodology of the Centre for the Study of Living Standards.
Source: Statistics Canada, U.S. Bureau of Labour Statistics

Martin paradigm on: Corporate strategy choice and international competitiveness

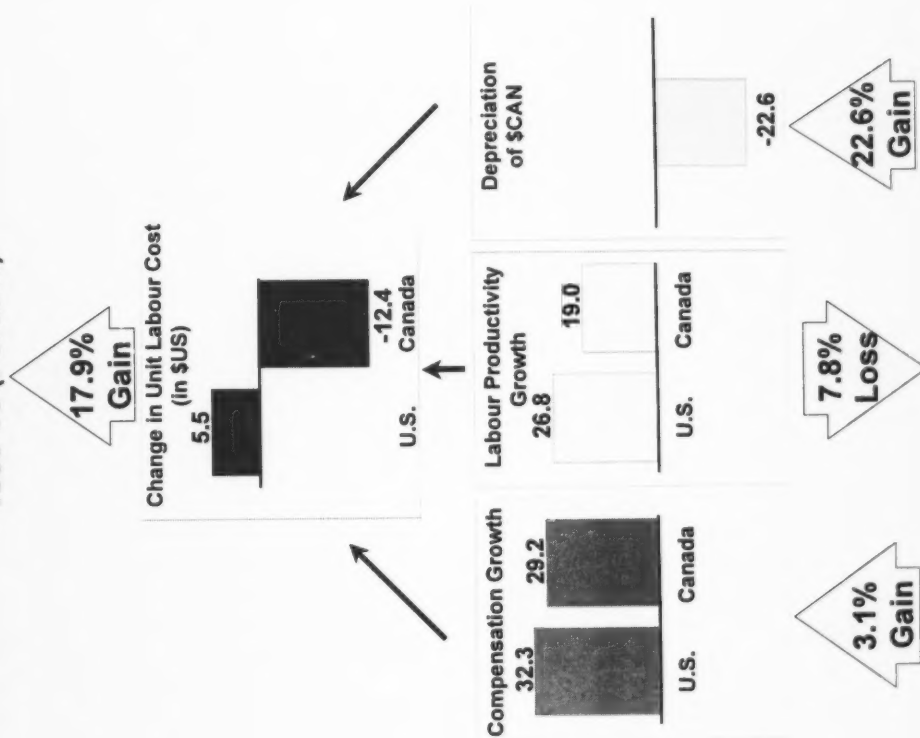
	Incompatible with Competitiveness	Supportive of Competitiveness
Aspirations & Goals	• Attain national competitiveness • Compete in home market • Accept second place behind no firm in the home country • Seek sustainable advantage until faced with a global competitor	• Attain global competitiveness • Compete around the world • Accept second place behind no firm around the world • Seek sustainable advantage against global competition
Where to Play	• In home country, typically with broad scope • Serving the most easily satisfied home customers at home	• Globally, even if only competing in a narrow niche • Serving the most demanding and sophisticated home customers abroad and at home
How to win	• Replication with lower cost labour or raw materials • Minimal R&D • National scale • Outside/third-party foreign distribution • Unbranded • Sustainable until out-competed	• Unique activity system/unique products and/or processes • Significant R&D • Global scale economies • Own foreign distribution • Branded • Sustainable

Source: Dean Roger L. Martin,
Joseph L. Rotman School of Management, University of Toronto

...pays to think, act globally

Our weak productivity performance is also subtracting from our international competitiveness

Change in Competitiveness — Manufacturing 1989-98 (Percent)*



Increased competitiveness does not necessarily increase a country's standard of living — this is achieved by increased productivity

* Based on logarithmic decomposition, therefore growth rates may differ from published growth rates.
Source: Statistics Canada, US Bureau of Labor Statistics

Trend #5: Innovation is increasingly at the heart of rapid, high value-added growth

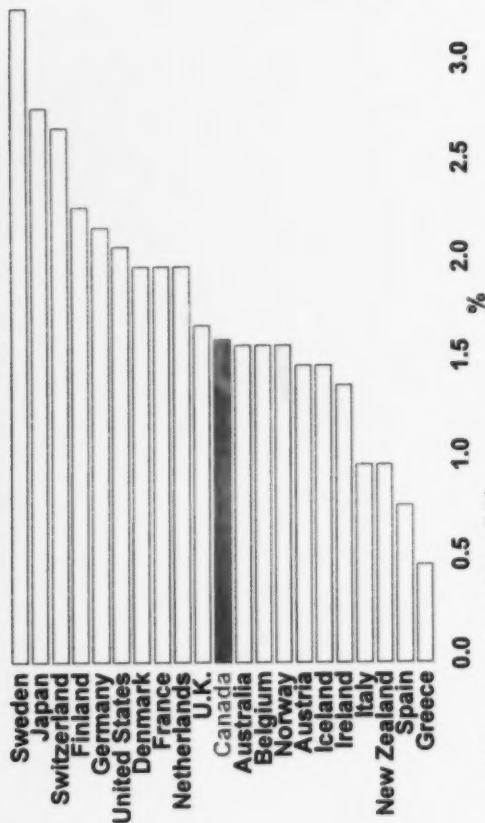
"Improvements in our innovative capacity are critical to productivity growth and wealth creation. Companies that are more innovative are more profitable, create more jobs and fare much better in global markets."

Conference Board of Canada
Performance and Potential, 1999

"Essentially, Canada seems to be 'missing the boat' ... it continues to innovate in traditional fields."

Manuel Trajtenberg (CIAR, NBER)
Is Canada Missing the "Technology Boat"?, 1999

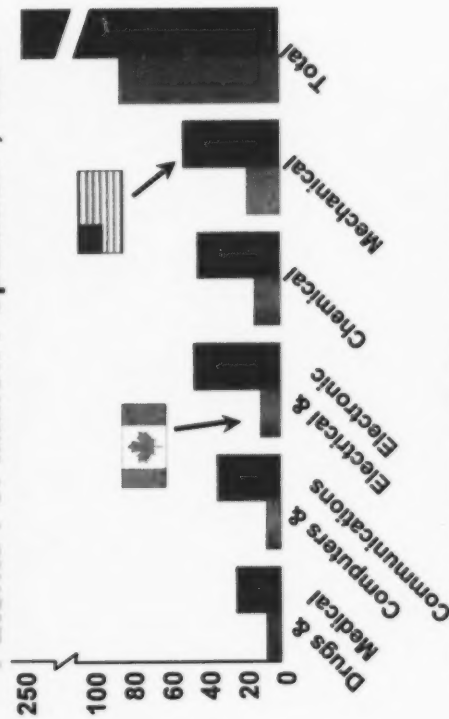
Civilian R&D as a % of GDP*



* 1998 or most recent year available

Source: OECD Main Science and Technology Statistics

Patents Per Million Population*, 1994



* Patents granted in the U.S. only. Other studies show that Canadians have a significantly higher propensity to patent in the U.S. than in Canada. Source: Is Canada Missing the "Technology Boat?", Trajtenberg, 1999

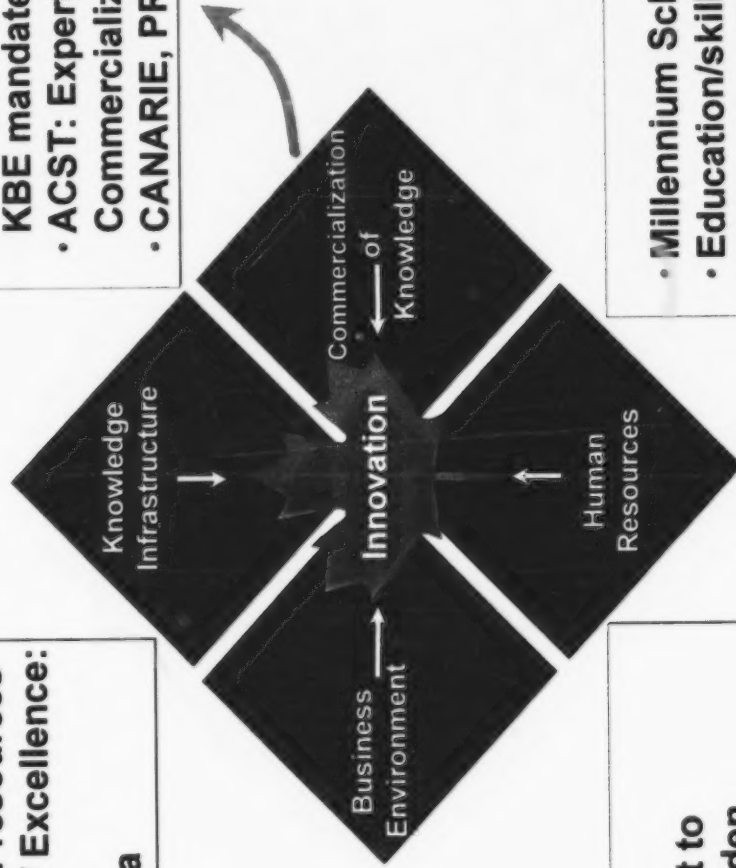
Investing in innovation must be a priority for all stakeholders in the Canadian economy

• 21st Century Research Chairs

- CIHR
- CFI
- Granting Councils: new resources
- Networks of Centres of Excellence: expanded/permanent
- Connectedness Agenda

• Technology Partnerships

- Canada (TPC)
- IRAP: expanded
- Business Development Bank: KBE mandate
- ACST: Expert Panel on Commercialization
- CANARIE, PRECARN



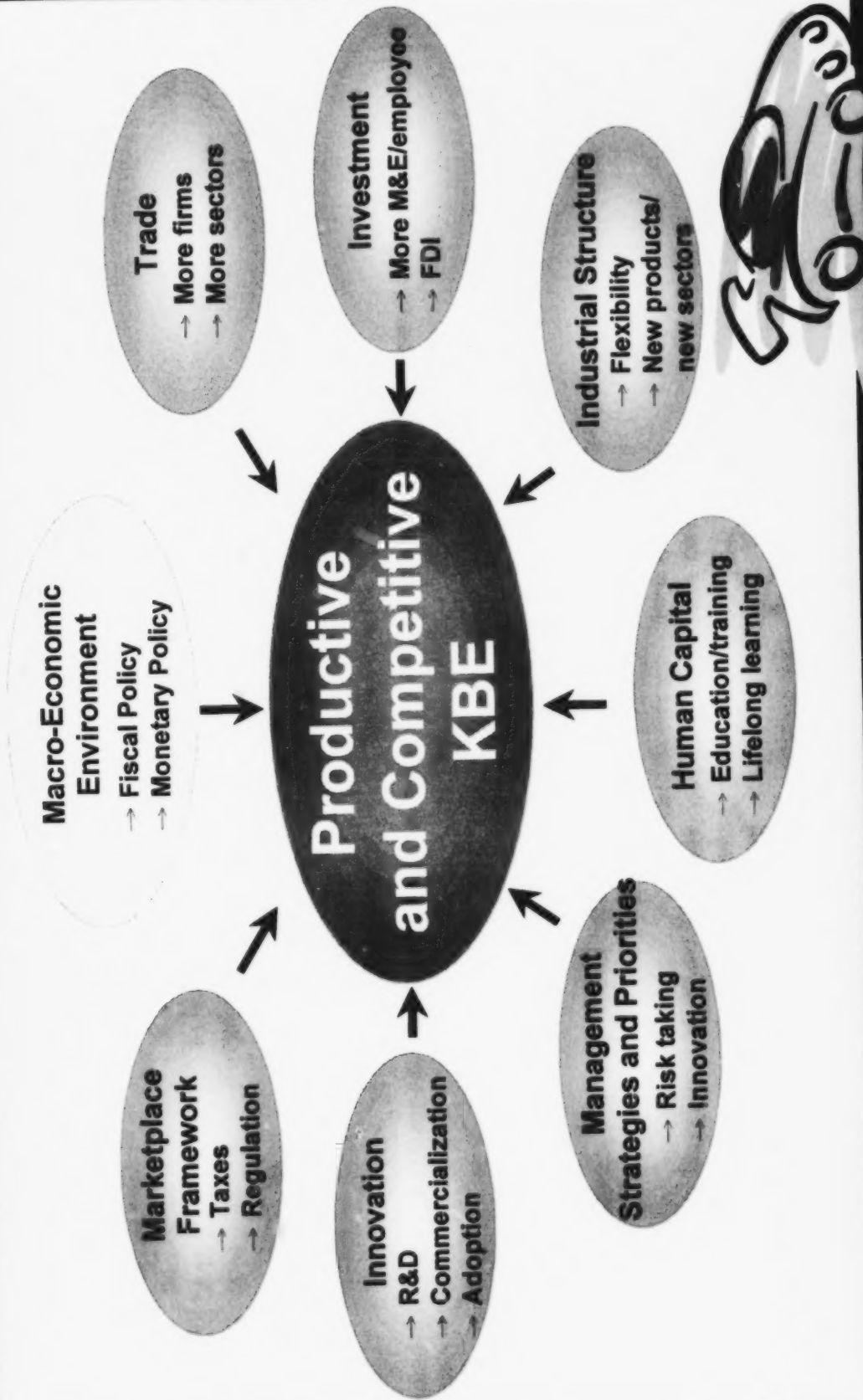
• Fiscal balance

- Multi-year commitment to lower personal tax burden
- R&D tax incentive regime
- Intellectual Property regime updated (Phase I)

• Millennium Scholarships

- Education/skills tax incentives
- 21st Century Research Chairs
- Immigration of skilled workers
- ACST: Expert Panel on Skills

There is no silver bullet for a productive and competitive economy in the global knowledge-based economy...it takes both a macro- and micro-economic agenda.



... and speed wins

Jobs and Growth Agenda

Productivity Growth • Employment Growth • Income Growth

Minister's Message

Introduction

STRATEGIC OBJECTIVES

Innovation

Connectedness

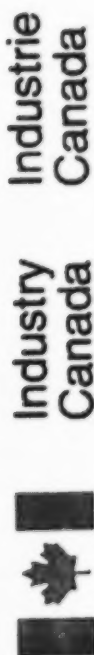
Marketplace

Investment

Trade

Corporate and Management Services

TRANSITION TO THE KNOWLEDGE-BASED ECONOMY



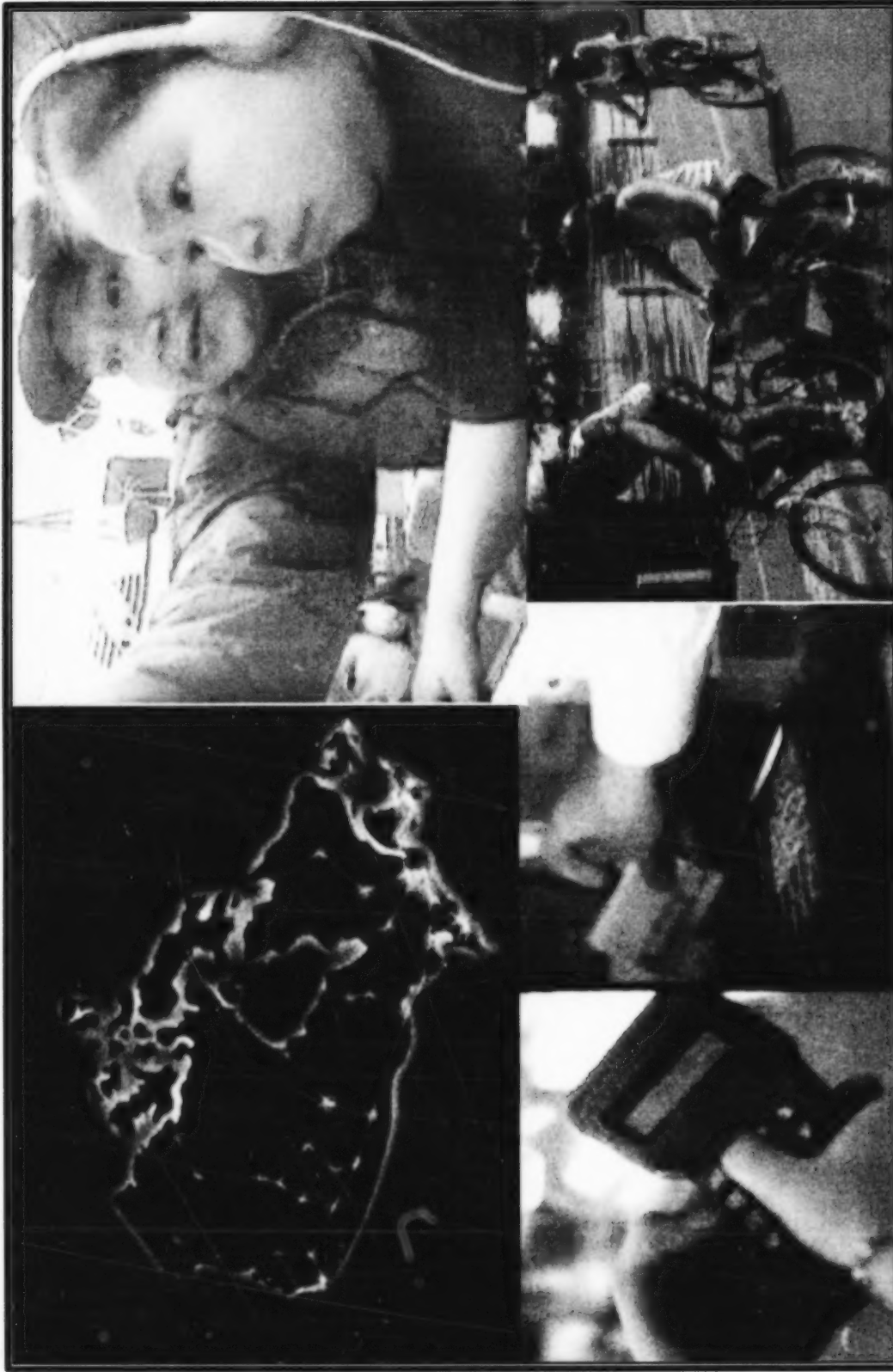
INDUSTRY CANADA: MEETING THE CHALLENGE

making a difference

BACK

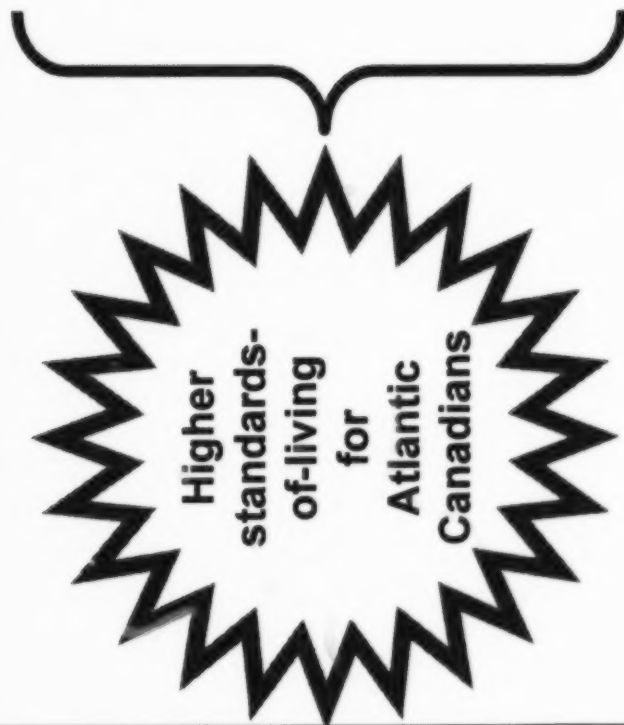
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Video

And what difference should this approach make for Atlantic Canada?



...in partnership, and sharing a common vision

